

Amendments to the Specification:

Please replace the paragraph on page 60, lines 9 to 12, with the following rewritten paragraph:

Then, as shown in Fig. 62, on the pattern 29c and the insulation layer 11, formed are the first magnetic layer 8 8b, the third non-magnetic layer 13, the second magnetic layer 12, and the vertical bias layer 2b.

Please replace the paragraph on page 61, lines 10 to 14, with the following rewritten paragraph:

On the pattern 29c and the insulation layer 11, provided are the first magnetic layer 8 8b, a third non-magnetic layer 13, and a second magnetic layer 12. On top of the second magnetic layer 12, the vertical bias layer 2b is provided so as not to be disposed immediately above the pattern 29c.

Please replace the paragraph on page 61, lines 15 to 25, with the following rewritten paragraph:

In addition, the third non-magnetic layer 13 allows the component material and the film thickness thereof to control the magnetic coupling between the second magnetic layer 12 and the magnetic layer 8 8b. Material forming the third non-magnetic layer 13 include a single material of one type, a mixture of materials of two or more types, a compound of two or more types, or a multi-layered film formed of materials of two or more types, which are selected from the group consisting of Ti, V, Cr, Co, Cu, Zn, Y, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Ag, Hf, Ta, W, Re, Os, Ir, Pt, Au, Si, Al, Ta, Pt, and Ni. In particular, Ru and Cr are favorable.

Please replace the paragraph on page 62, lines 10 to 23, with the following rewritten paragraph:

Now, the operation of the magneto-resistance effect head 66a according to this embodiment is described below. When an external magnetic field is applied to the magneto-resistance effect head 66a, the magnetic field is applied to the second magnetic layer 12 via vertical bias layer 2b. Subsequently, a vertical bias magnetic field is applied from the second magnetic layer 12 to the magnetic layer 8b via the third non-magnetic layer 13 by means of magnetic coupling such as ferromagnetic coupling, anti-ferromagnetic coupling, or magneto-static coupling. Furthermore, the vertical bias magnetic field is applied from the magnetic layer 8 8b to the free layer 3b via the second non-magnetic layer 9 by means of magnetic coupling such as ferromagnetic coupling, anti-ferromagnetic coupling, or magneto-static coupling.

Please replace the paragraph on page 63, lines 7 to 13, with the following rewritten paragraph:

Now, an effect of this embodiment is described below. In the magneto-resistance effect head ~~65a~~ 66a according to this embodiment, a vertical bias magnetic field is applied to the free layer 3b from the vertical bias layer 2b through three steps of process, thereby assuring the application of the vertical bias magnetic field and facilitation the control of the amount of application of the magnetic field.

Please replace the paragraph stating on page 63, lines 14 to 28, and continuing on page 64, lines 1 to 8, with the following rewritten paragraph:

Another advantage of the magneto-resistance effect head ~~65a~~ 66a is

provided when the layered film made up of the magnetic layer 8 8b, the third non-magnetic layer 13, and the second magnetic layer 12 produces a strong anti-ferromagnetic coupling between the magnetic layer 8 8b and the second magnetic layer 12. The advantage is also provided when the magnetization of the magnetic layer 8 8b (the product of the saturation magnetization and the film thickness) is made substantially equal to that of the second magnetic layer 12. In this case, the foregoing layered film is turned to a merged film having effectively no magnetization, thus providing no sensitivity to the magnetic field of an external magnetic field applied. For this reason, in this case, only the free layer 3b, in the structure of Fig. 64, has sensitivity to an external magnetic field. Thus, the width of the tracks is determined only by the pattern width of the free layer 3b when the magneto-resistance effect head 65a 66a functions as the read head. This is advantageous in making a narrow-track head. Incidentally, even in this case, a vertical bias magnetic field is applied precisely to the free layer 3b through the aforementioned process. In addition, that the magnetization of the magnetic layer 8 8b is substantially equal to that of the second magnetic layer 12 means that they are equal to each other to the degree that the aforementioned effect is recognized.